

BOROUGH OF MEDFORD LAKES MASTER PLAN

ACKNOWLEDGEMENTS:

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Emery Danzell
Bob Hanold
Richard McDonald
Ralph Melick
John Weaver
Stanley Weisner

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Medford Lakes Master Plan Committee

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Special Thanks to the following

Clint Alexander
Carl Goodfellow
Dorothy Hepner
Roger Smith
Medford Lakes Colony Club



Dear Members:

Ragan Stein Associates is proud to tender the Borough of Medford Lakes its comprehensive plan. The plan is an inventory of Borough development, open space and recreation characteristics. The highest standards of planning, environmental protection, aesthetics and human development, have been used in the plan's formulation.

The plan completely expresses the community's best hopes and aspirations for maintaining the present quality of life found in the environs of Medford Lakes.

We thank the residents of the Borough of Medford Lakes, the members of the Planning Board, the Colony Club and the Administrative staff for their assistance in the development of this plan. We hope that the combination of these efforts and its product, the Master Plan, provide the Planning Board with a basis for long term planning decisions.

Very truly yours,

Ragan Stein Associates

21 N. MAIN ST.
MEDFORD, N.J. 08055
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The cover shows Leon Todd's original home and the garage is thought to be the site of the original Aetna furnace: photograph courtesy of Leon E. Todd, Inc.

background & goals

Medford Lakes is best regarded as a developed community which began in 1929. It was started as a summer "resort" but increasing numbers of people made Medford Lakes their permanent home. Most of the housing was built in the twenty-five years after World War II when the massive move to the suburbs occurred.

The result has been a cohesive, homogeneous community which is unlike the usual New Jersey "Township" with its complement of agricultural land and services. It is almost entirely a residential community with a population density of about 5,000 people per square mile.

Land use figures illustrate the Borough's development: Now radical changes in land use strategy are not possible.

<u>Land Use</u>	<u>Acreage</u>	<u>Percent</u>
Residential	528.6	65
Lakes & Streams	126.9	16
Institutional	34.0	4
Commercial	9.3	1
Colony Club	30.2	4
Country Club	76.7	9.8
Borough	<u>1.4</u>	<u>0.2</u>
TOTAL	<u>807.1</u>	<u>100%</u>

slopes on the banks of the lakes. This is reflected in the soil types.

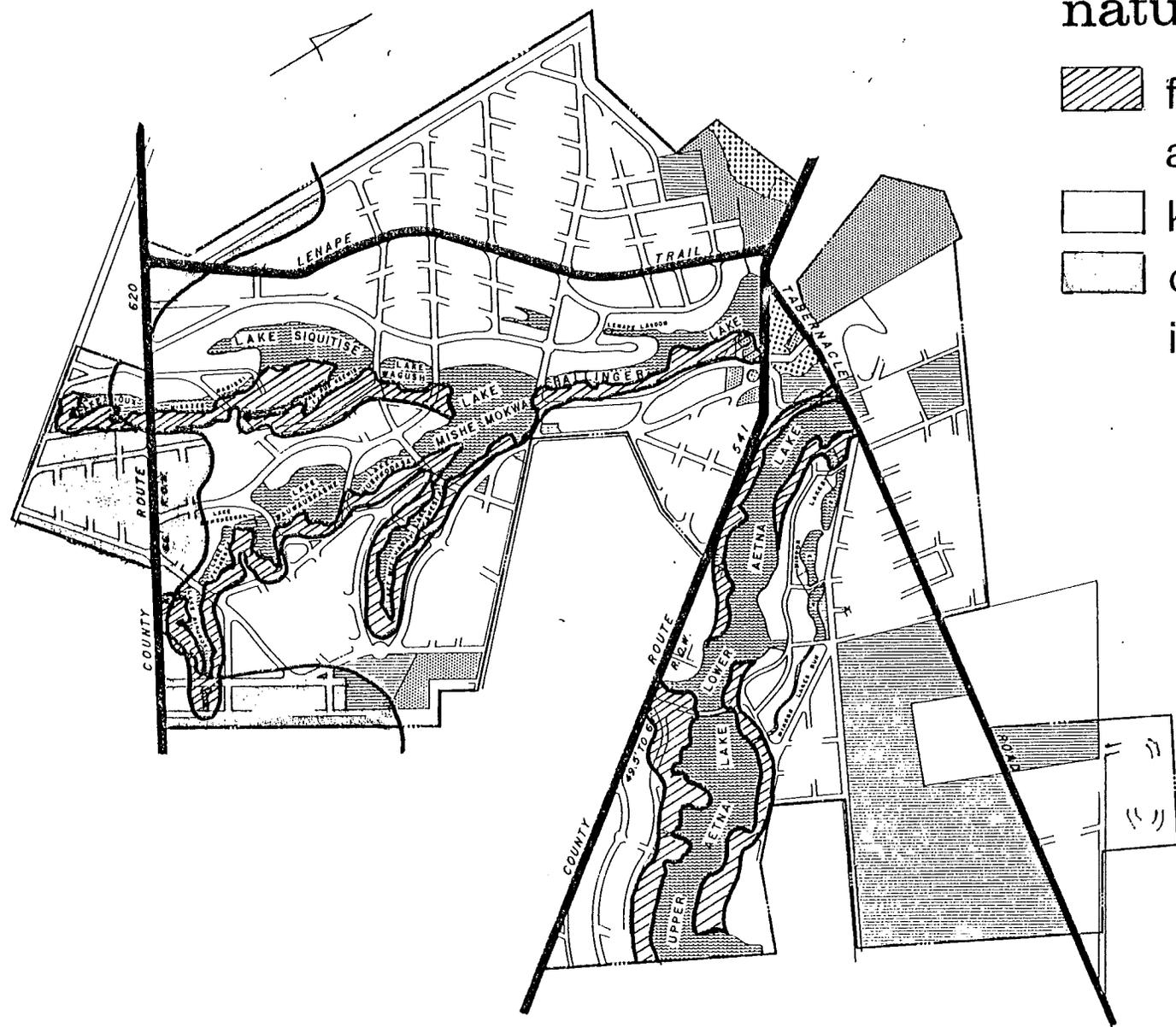
As a consequence of the land tilt, the man-made chain of lakes which comprise the most distinctive topographic feature, drain northward into the Southwest Branch of the Rancocas Creek.

GEOLOGY

Geology is the study of the composition of the earth and its surface features. By knowing the situation of the streams, and more precisely, of their physical and chemical nature, their suitability for settlement and all other human activities can be assessed.

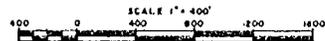
According to the Ecological Planning Study of Medford Township prepared by the University of Pennsylvania, Department of Landscape Architecture and Regional Planning, underlying Medford Lakes is the Kirkwood Geologic formation and the Kirkwood-Cohansey interface formation. Both form part of the Outer Coastal Plain. The formation has resulted from erosion of the landward edge of coastal plain sediments. Both formations are highly porous and very permeable and represent important unconfined aquifers in the Coastal Plain. They are responsible for the extremely well-drained soils of the Outer Coastal Plain. As these aquifers are unconfined and comparatively shallow locally, the water yield may be limited.

BOROUGH OF MEDFORD LAKES



natural features

-  flood plain
-  aquifer recharge area:
-  kirkwood formation
-  cohansey-kirkwood interface



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1

Note: There is a preliminary study being conducted regarding flood plain limits.

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	MEDFORD LAKES MASTER PLAN LAND USE PLAN MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N.J. DATE 11-1-82 DRAWN 7-9-76 179.20

SOILS

All soils fall into classifications. The classification in Medford Lakes is of the "Lakewood and Lakehurst" series. These soils have the following characteristics:

- high permeability
- low fertility and organic water
- extreme acidity
- added fertilizer leaches readily
- easily erodible on sloping sites
- low available water capacity

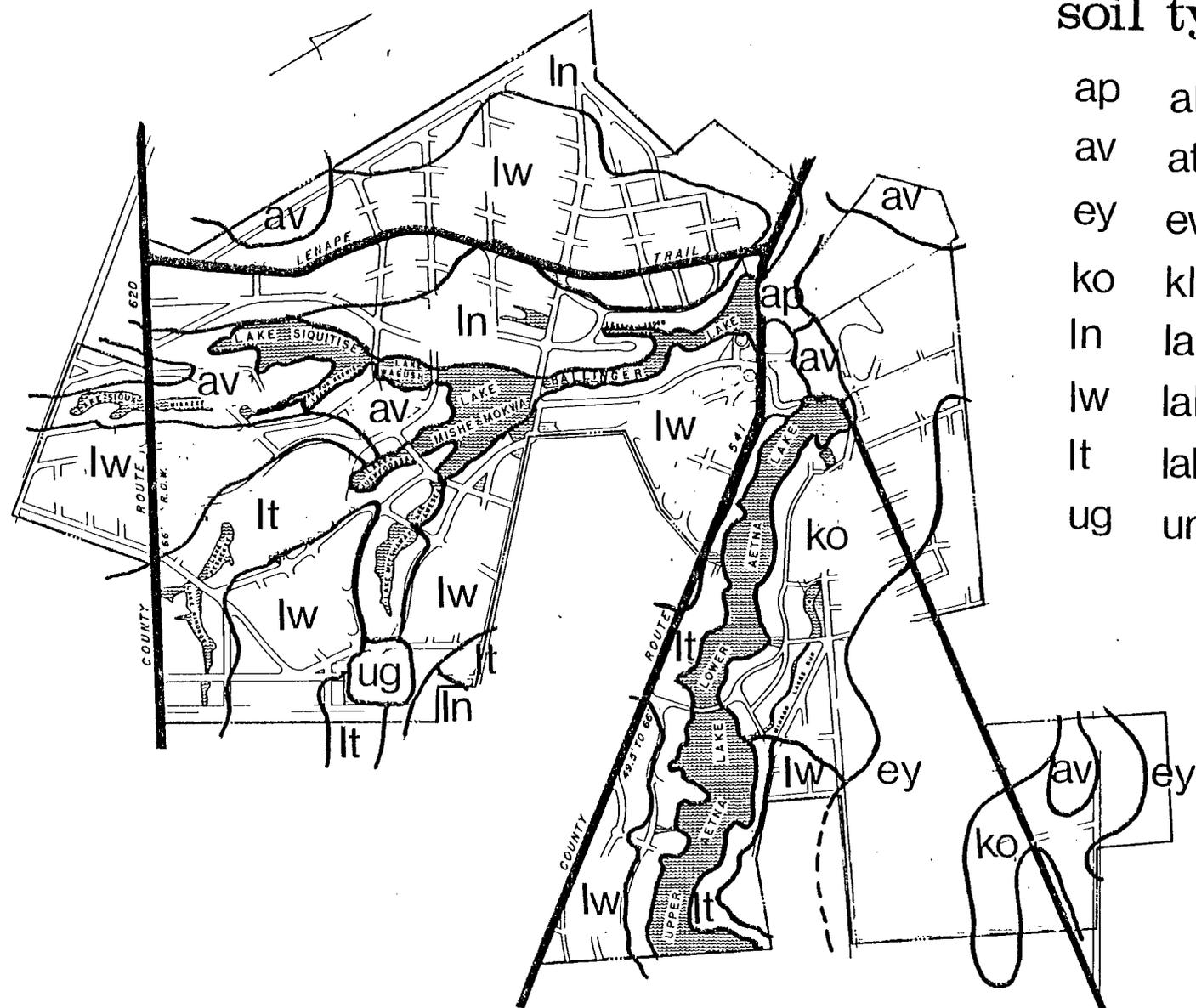
The soils generally occur with the Lakewood series at higher elevations, then the Lakehurst series giving way to the Atsion series at lower levels and Alluvial soils adjacent

to the surface water. The water table varies proportionately to the height above the surface water with the seasonal high water table being less than a foot from the surface of the Atsion and Alluvial soils and below five feet in the Lakewood soils.

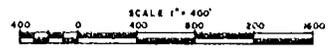
Erosion presents a severe problem where these soils are exposed in sloping sites. Where flat, the sands are extremely permeable so that run-off occurs only during the worst storms. However, at slopes of 10-15 percent, all the soils erode severely with the fine sands flowing when saturated. The Lakewood sands on the lake banks have a potential soil loss of 100-200 cubic feet/acre/year where the consequent eutrophication is a real problem. This problem can increase if planting is inadequate and if run-off control from roads and paved surfaces is insufficient.

Klej fine sand is found on flat areas and shares the characteristics of the soils listed above. It has a high water table (to two feet from the surface in late winter) and although the soil does not leach as readily, leaching is still rapid. Evesboro soils have a lower water table as they are found on higher sites.

BOROUGH OF MEDFORD LAKES



- soil type
- ap alluvial land
 - av atson fine sand
 - ey evesboro fine sand
 - ko klej fine sand
 - ln lakehurst fine sand
 - lw lakewood fine sand
 - lt lakewood sand
 - ug urban land*



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*Urban land consists of cut and fill areas as defined by the Soil Conservation Service, Soil Survey Burlington County, New Jersey, October 1971.

NO.	DESCRIPTION
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2	MEDFORD LAKES MASTER PLAN LAND USE PLAN MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N.J.

CLIMATE

Medford Lakes has a humid temperate climate which is continental in its extremes. It has temperatures in the nineties in the summer months while in winter it is cold and dry with air masses moving across from the north Atlantic and northwestern America.

The lakes and vegetation modify the overall climate so that frosts occur somewhat later than elsewhere in the vicinity. The lakes and vegetation also cause milder temperatures in the summer months.

There are difficulties in climate data collection. The most significant problem is that the records upon which any predictions are based should be of several years duration. Therefore, it is difficult to find this data for presentation here.

Generally, summer temperatures seldom exceed 100°F, but are frequently in the middle or upper 90's. Winter temperatures usually do not get below 5°F for any length of time. The winter temperatures are usually in the middle twenties. The average annual precipitation is approximately 44 inches which is well distributed throughout the year. 6

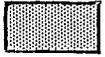
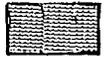
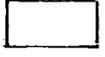
zoning districts

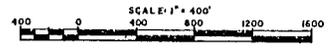
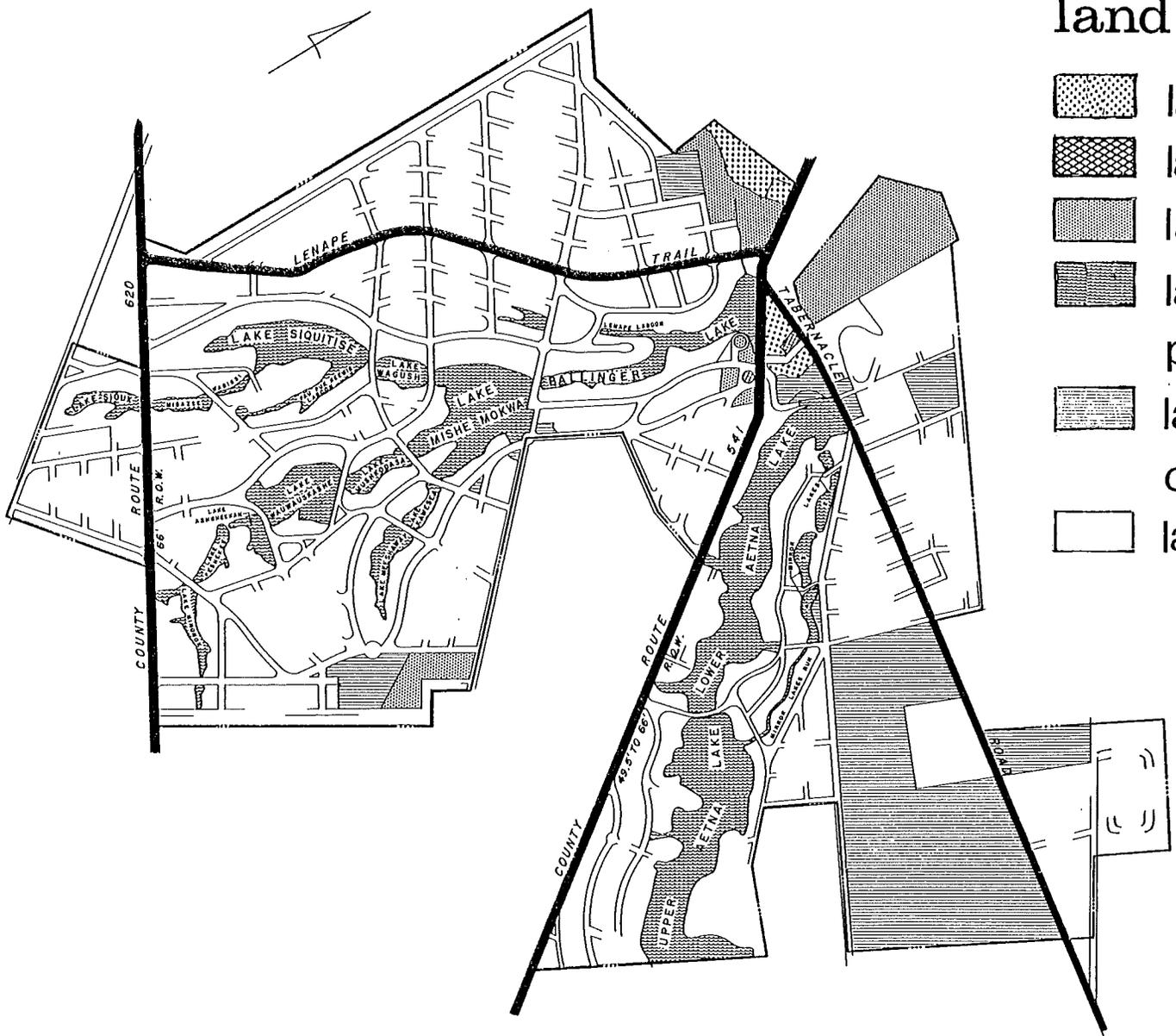
The Master Plan for the Borough of Medford Lakes deals with the municipality's past, present, and future development. The plan divides the Borough into zones, each zone having unique housing and/or environmental characteristics. The use of zoning enables the Borough to maintain its present character and quality of life within the existing development structure of the Borough.

All the proposed zones in the Master Plan have been developed to support the fact that Medford Lakes is a developed municipality.

BOROUGH OF MEDFORD LAKES

land use plan

-  lakes commercial
-  lakes quasi-public
-  lakes institutional
-  lakes natural resource preservation
-  lakes open space conservation
-  lakes residential



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C. Kenneth Anderson P.E. & L.S. (N.J. LIC. NO. 11870, Exp. 3/31)	REVISION: _____ DESCRIPTION: WILLS, ANDERSON & LORD CONSULTING ENGINEERS MT. HOLLY-LAMBERTON RD., MT. HOLLY, N.J. 08040 (609) 287-1210
	MEDFORD LAKES MASTER PLAN LAND USE PLAN MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N.J.
	SCALE: 1" = 400' DATE: 1-5-78 DRAWN BY: C.K.A./PZ

The following description gives an indication of the purpose of each of the proposed zones:

LAKES RESIDENTIAL

The Lakes Residential zone, the largest zone in Medford Lakes' Master Plan is designed to insure the quality of development that has been fostered throughout the single-family structures and ensures a moderate density similar to the existing residential land use pattern. As outlined in the Development Ordinance, which is to follow this Plan, performance standards will encourage on-site protection of environmental resources. Any future residential uses in this zone will have public sewers.

LAKES COMMERCIAL ZONE

The Lakes Commercial zone is patterned to deal with existing commercial areas in the Borough. There are three types of development that can occur in this district: 1) development

of a trail in a variety of uses; 2) development of a single-trail for a new single-use; or 3) conversion of an existing structure into a new single use. Specifically, only light commercial uses will be permitted.

LAKES INSTITUTIONAL ZONE

The Lakes Institutional zone consists of land currently in institutional use in the Borough. The purpose of this district is to maintain the institutional character of the area in contrast to the mixed land use character of the remainder of Medford Lakes. Institutional uses consist of the following: the Neeta School and Nokomis School, the municipal garage, Oaks Hall, sewage treatment plant, churches, and fire station.

LAKES NATURAL RESOURCE PRESERVATION ZONE

The Lakes Natural Resource Preservation zone has one of the most important

purposes of any zone. The purpose of this zone is to protect the unique ecological balance of the forests, swamps, lakes, natural waterways and open space by permitting low-density development in a manner which ensures the quality of open space and surface water. All present beach areas are also included in this category.

LAKES QUASI-PUBLIC ZONE

The purpose of the Lakes Quasi-Public zone is to ensure the maintenance of the existing open space which is presently used for municipal purposes. The parking lot at the corner of Tabernacle Road, the Trading Post, and the memorial park area between Minnetonka and Mohawk Trails are in this category.

LAKES OPEN SPACE CONSERVATION ZONE

The Lakes Open Space Conservation zone was designed to protect existing open

population & housing

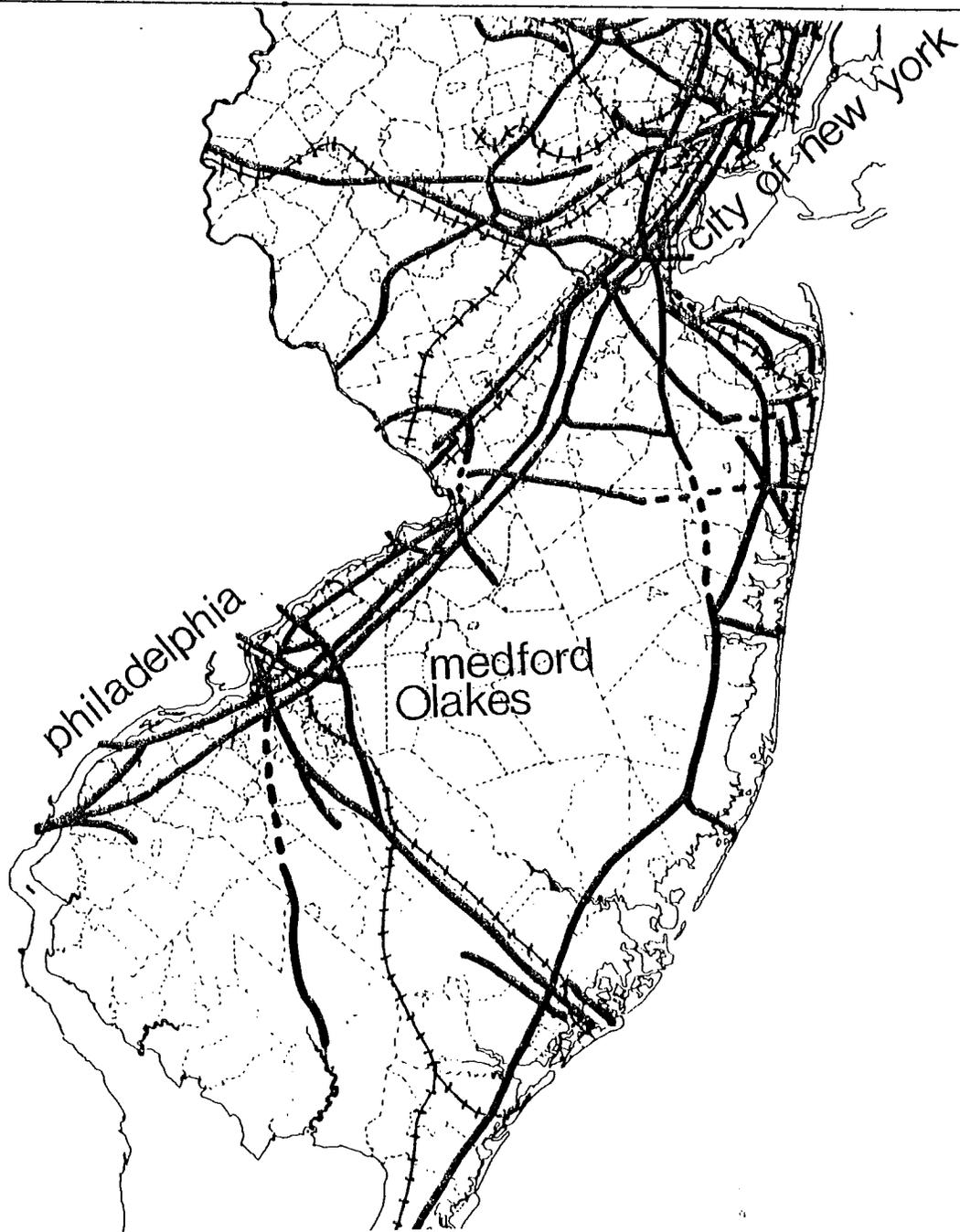
REGIONAL CONTEXT

Medford Lakes is set almost in the center of Medford Township. In 1939 it became a municipality in its own right. It is presently an autonomous body operating under the Municipal Manager and a three member Borough Council.

According to the Preliminary Draft of the State Development Guide Plan for New Jersey, it lies in a "Limited Growth Area." It lies off the main transport corridors being approximately fifteen miles to the nearest rail and major state highway connections.

The State Development Guide Plan recommends that one strategy for Limited Growth Areas should be aimed at "discouraging population expansion in these areas;" it should "contain suburban expansion" and "discourage leap-frog development."³ The State will limit public investment in these areas to a minimum level consistent with maintaining public health, safety and general welfare. Accordingly, improvements in utilities and roads will be confined to levels consistent with moderate growth.

BOROUGH OF MEDFORD LAKES



- major state transport
- existing highways
 - - - committed highways
 - + + + commuter rail

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MEDFORD LAKES MASTER PLAN LAND USE PLAN	
MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N.J.	
<i>C. Kenneth Anderson</i> C. KENNETH ANDERSON	
DATE 7-8-76	77-20

DEMOGRAPHIC CHARACTERISTICS*

In 1970, 4,792 people lived in Medford Lakes: by 1975 this had risen by 4-6% (State and NPDC estimates respectively) and in 1977 it was estimated at 5,700, a rise of 18 percent in seven years.

Because of its wholesome rural atmosphere, Medford Lakes has been singled out as "a fine place to bring up a family." In 1970, 40 percent of the population was under the age of 16. The predominance of single families with two children indicates that it is almost static and it is unlikely that this percentage, or the absolute number of children, will vary greatly. Consequently, the school system will probably remain adequate although some consideration could be given to more recreational facilities for the children.

*All data obtained from the U.S. Bureau of the Census.

EMPLOYMENT

The 1970 U.S. Census shows that almost all the work force of Medford Lakes is employed outside the Borough; this is illustrated by the table below:

<u>Destination</u>	<u>Percent of Work Force</u>
Philadelphia	21%
Delaware, Montgomery, Bucks, and Chester Counties, PA	3%
Camden County	13%
Burlington County	40%
Gloucester County	2%
Other Areas	16%
Worked at home/walked to work	5%

It is unlikely that these percentages have changed much since 1970 as there have been no significant changes in the local employment market.

In 1969, most families were on wages or salary. The percentage of unemployed men of working age was negligible. About one-third of women over 16 years of age were employed but only 10 percent having children under the age of 6 were in the work force.

<u>Most Common Occupations</u>	<u>Men</u>	<u>%</u>	<u>Women</u>	<u>%</u>
Professional	502	29	169	31
Managers	334	19	10	2
Sales	248	14	46	9
Clerical	348	20	244	45
Craftsmen	166	10	-	-
Other	<u>141</u>	<u>8</u>	<u>70</u>	<u>13</u>
TOTAL EMPLOYED	<u>1,739</u>	<u>100%</u>	<u>539</u>	<u>100%</u>

Source: U.S. Bureau of the Census.

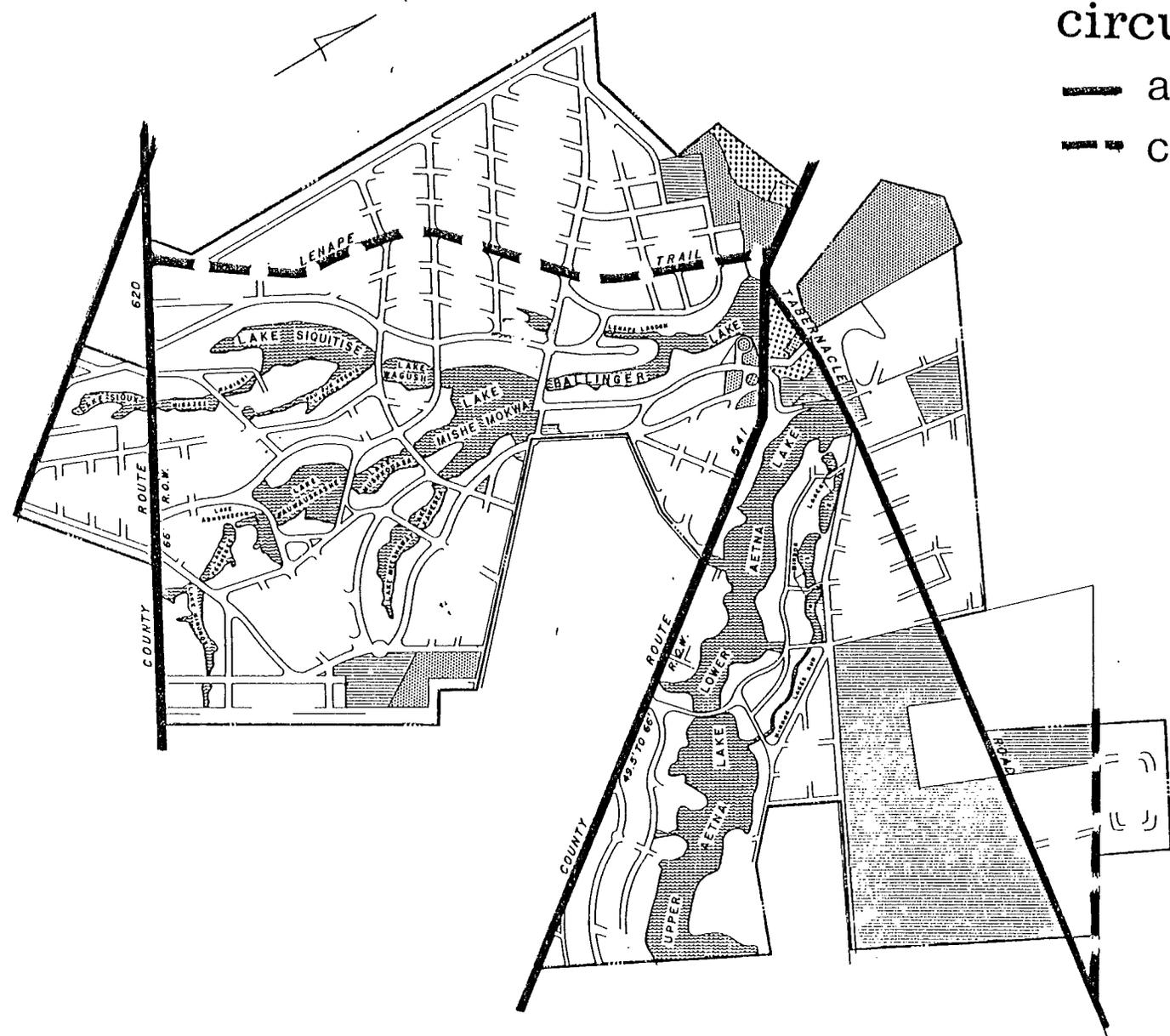
circulation

EXISTING SYSTEM

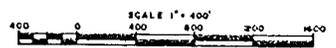
The diminutive size of Medford Lakes is underlined by the length of the roads which run through it:

	<u>LENGTH</u>
<u>COUNTY ROUTES</u>	
Stokes Road - County Route 541	1.3
Tuckerton Road - County Route 620	0.9
<u>MUNICIPAL ARTERIAL ROADS</u>	
Tabernacle Road	1.0
Atsion Road	0.3
<u>COLLECTORS</u>	
Lenape Trail	0.9
Dixontown Road	0.2

BOROUGH OF MEDFORD LAKES



circulation
 — arterials
 - - collectors



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 C. KENNETH ANDERSON <small>P.E. & S. N.J. NO. 11179, P.E. 311</small>	<small>DATE</small> 2-2-70
	<small>SCALE</small> 1" = 400'
<small>CLIENT</small> WILLS, ANDERSON & LOHD <small>CONSULTING ENGINEERS</small> <small>MT HOLLY-LAMBERTON RD., MT HOLLY, N.J. 08060</small> <small>(609) 287-1210</small>	
<small>PROJECT</small> MEDFORD LAKES MASTER PLAN <small>LAND USE PLAN</small> <small>MEDFORD LAKES BOROUGH</small> <small>BURLINGTON COUNTY, N.J.</small>	
<small>DATE</small> 2-2-70	

The road system and the relationship with the surrounding towns and cities is shown in figure 4.

TRAFFIC CONGESTION

One of the problems faced by Medford Lakes is traffic congestion on the County roads which run through the community. Developments to the south of Medford Lakes will result in future increases in traffic volume on Routes 541 (Stokes Road) and 532 (Tabernacle Road). Contrary to the New Jersey policy for this area of restricting road improvements to discourage development, there will be a need for a by-pass around Medford Lakes if the community is not to be bifurcated by traffic. The County is reviewing the use of Dixontown Road as a by-pass of the Medford Lakes area in the near future.

The Borough Officials are aware of this and should be monitoring developments in the areas around it with a view to determining peak traffic loadings. Should the loadings exceed the capacity of Route 541 within Medford Lakes, it will be more helpful to push for a by-pass than to opt for major road improvements. However, in the short term, traffic operational changes in the Borough where the three major roads (Lenape, Stokes, Tabernacle) converge should be considered.

Apart from local traffic generated within Medford Lakes, the Borough has no control over the volume of through traffic. This means that transit alternatives to ease traffic congestion are not feasible.

TRANSIT

According to the U. S. Bureau of the Census, within Medford Lakes most families own two or more automobiles. Three-quarters of the trips to work are by single occupant automobile. According to Burlington County traffic estimates for 1976, approximately 4,000 vehicle trips on Route 541 were generated by residents of Medford Lakes. An accepted figure for peak hour travel

(7-9 AM, 4-7 PM) travel is about twenty-five percent of the total day's trips; that is, five hundred commuter cars travel in and five hundred go out of Medford Lakes. If we consider twenty-one percent go to Philadelphia, this means that only about one hundred people are available for car-pooling or an express bus. Public transit direct from Medford Lakes does not seem to be a viable proposition.

The forty percent that travel north cannot be accommodated because the employment centers are dispersed throughout the county.

Present public transport is operated by Transport of New Jersey (to Camden and Philadelphia) and Garden State busses (to New York). The former operates a skeleton service with eight trips to, and nine from, Philadelphia daily. On Saturday there are two trips and on Sunday none.

Garden State Coachways travels to New York on the New Jersey Turnpike. It operates six trips to New York on weekdays, eight on Saturdays and Sundays.

About thirteen miles away is the Lindenwold High Speed Line direct to Philadelphia. Considering that Philadelphia is only twenty miles away, this does not seem to be an attractive alternative for commuters.

Further transit alternatives such as express bus and mini-bus are available, but considering the lack of a large downtown as a trip focus, and the number of people who are in real need of public transport, these are probably impractical at present.

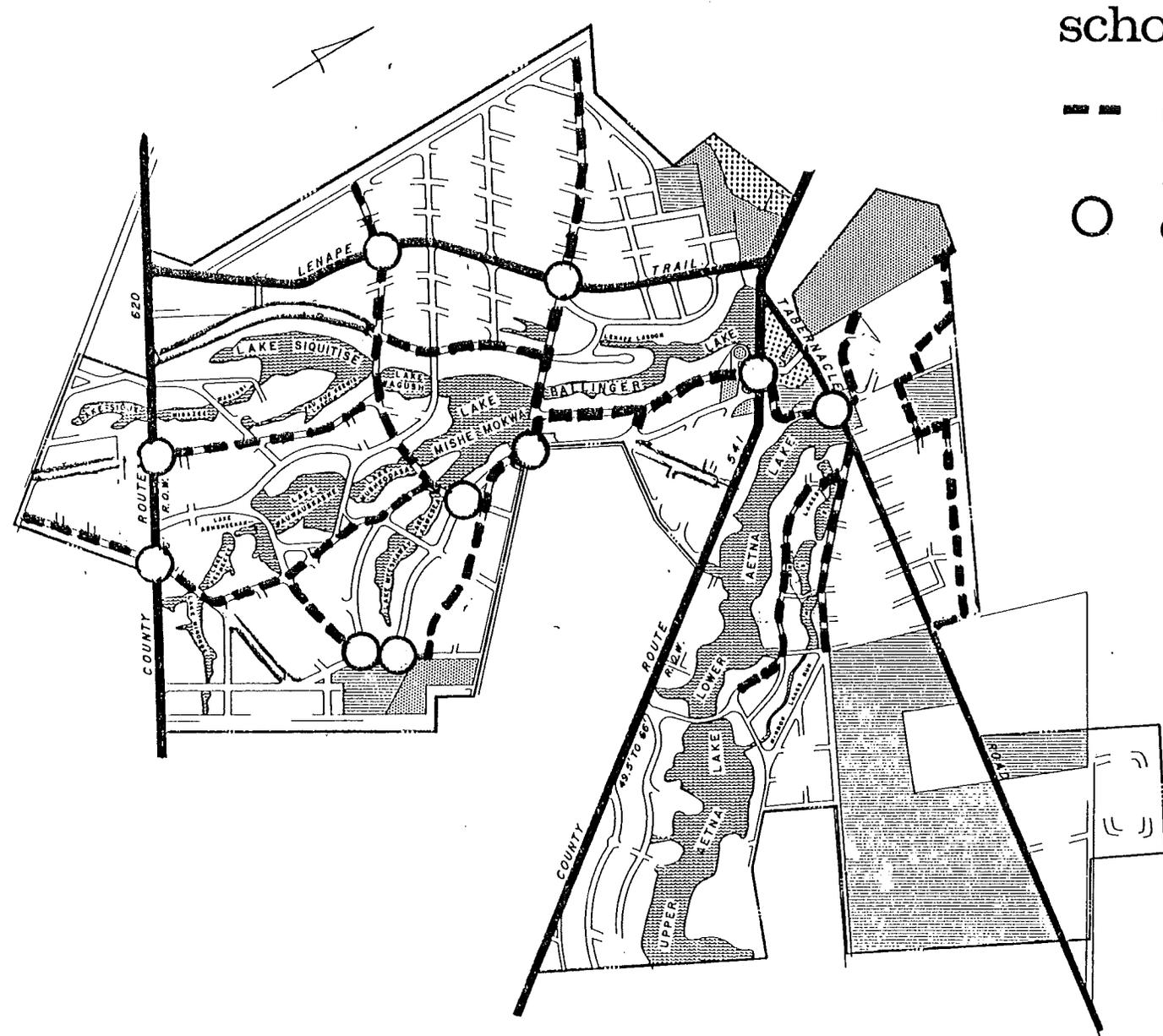
Airport service is available at Philadelphia International, Mercer County and Newark Airports.

SCHOOL COURTESY ROUTES

Throughout the Borough, eighteen roads have been designated since 1966 for children to use for bicycling to and from school and other recreational facilities. However, these are often inadequately sign-posted and "School Courtesy Route" does not convey the exact intent of the road restriction, especially to people who are non-residents.

The Medford Lakes Police Department is surveying the program to make it more efficient. One of their suggestions is to note on the sign that "Motorists should avoid use during hours of school traffic." Another suggestion is amending the routes as some of the roads are not contiguous.

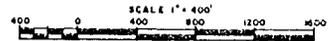
BOROUGH OF MEDFORD LAKES



school courtesies roads

--- existing routes

○ existing signs



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 C. KENNETH ANDERSON <small>PEA'S PUBLIC NO. 11878 PD 141</small>	<small>SCALE 1" = 400'</small> <small>DATE 11-9-30</small>
	<small>SCALE 1" = 400'</small> <small>DATE 11-9-30</small>
<small>WILLS, ANDERSON & LORD CONSULTING ENGINEERS MT HOLLY-LIMBERTON RD, MT HOLLY, N.J. 08060 (609) 287-1210</small>	
<small>MEDFORD LAKES MASTER PLAN LAND USE PLAN MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N.J.</small>	

With the large number of children in the area, thought could be given to marking and signposting permanent bicycle paths on some trails. A child's activities do not stop after school and bicycling is one of the most efficient means for people to get around for short distances.

SUMMARY

Most of the local roads in Medford Lakes need frequent resurfacing. They do not need widening or other improvements. They are adequate for their function. It is strongly recommended that the system of bicycle routes be streamlined and that some marked paths be provided.

The arterial roads now are fairly heavily used and it is probable that in the future, housing developments around Medford Lakes will contribute to congestion. The intersections of Tabernacle Road and Lenape Trail with Stokes Road (Route 541), will need operational changes, and it is recommended that a by-pass be sought rather than road-widening.

utilities

WATER SUPPLY

Water supply is from individual homeowners' wells. On new developments the County requires that water softeners and purifiers be installed. Wells are generally drilled into the Mount Laurel sand at about 250 feet. The yield is good, up to 300 gallons per minute, and the water is generally of satisfactory quality, although it may be high in iron.

SEWAGE DISPOSAL

The sewage plant was built in 1937-38 and became Borough property when Medford Lakes was separated from Medford in 1939.

Its capacity is 550,000 gallons which is considered to be sufficient for the total planned development of Medford Lakes.

Primary and secondary treatment is undertaken together with tertiary treatment with slow sand filters and at present (July 1978), the installation of advanced treatment (phosphate removal) is under construction.

SOLID WASTE DISPOSAL

Garbage collection is provided twice weekly by the Borough. Sanitary landfill facilities are contracted for annually. The present sites are on Big Hill and Retreat Road in Southampton Township; there is not likely to be any problems with disposal in the short term. However, Burlington County is investigating possibilities to cope with a foreseeable lack of County-wide landfill facilities in the long term.

The Borough also arranges for brush, leaf and other trash collection. Tree waste is chipped and is then available to residents. Leaf and other waste is disposed of at the landfill site. Although it is a relatively small point, it may be possible to compost leaf waste and make it available to residents as garden mulch which would help to offset the problem caused by artificial fertilizer run-off into the lakes.

DRAINAGE & FLOOD CONTROL

The amount of direct run-off generated is a factor of incident precipitation, the nature of the ground cover and the permeability characteristics of the soil. In Medford Lakes over 80 percent of the soils have hardly any run-off potential at all. Most precipitation except that channelled by roads reaches the ground water which is contiguous with the lakes.

The most recent flood was on Ballinger Lake in 1940. Most of the shore lines of the Borough are designated as 100 year flood plain. Much of the shore is already built on, but where it is not there should be a prohibition on building unless it can be demonstrated that there will be no hazard to life or property, no damage will result from such a flood, and that the flood area will not be impaired. The lakes also serve as retention basins. Storm drains in the community also drains into the lakes.

MAINTENANCE VEHICLES

The Borough has its own garage for housing fire-fighting equipment, refuse trucks, and snow and leaf disposal equipment. In the past five years, bonds to the amount of

\$146,000 have been authorized for the purchase of this equipment, and \$129,000 for improvements or renewals of municipal buildings including a new fire house and garage. These are discussed further in the community facilities element of this plan.

community facilities

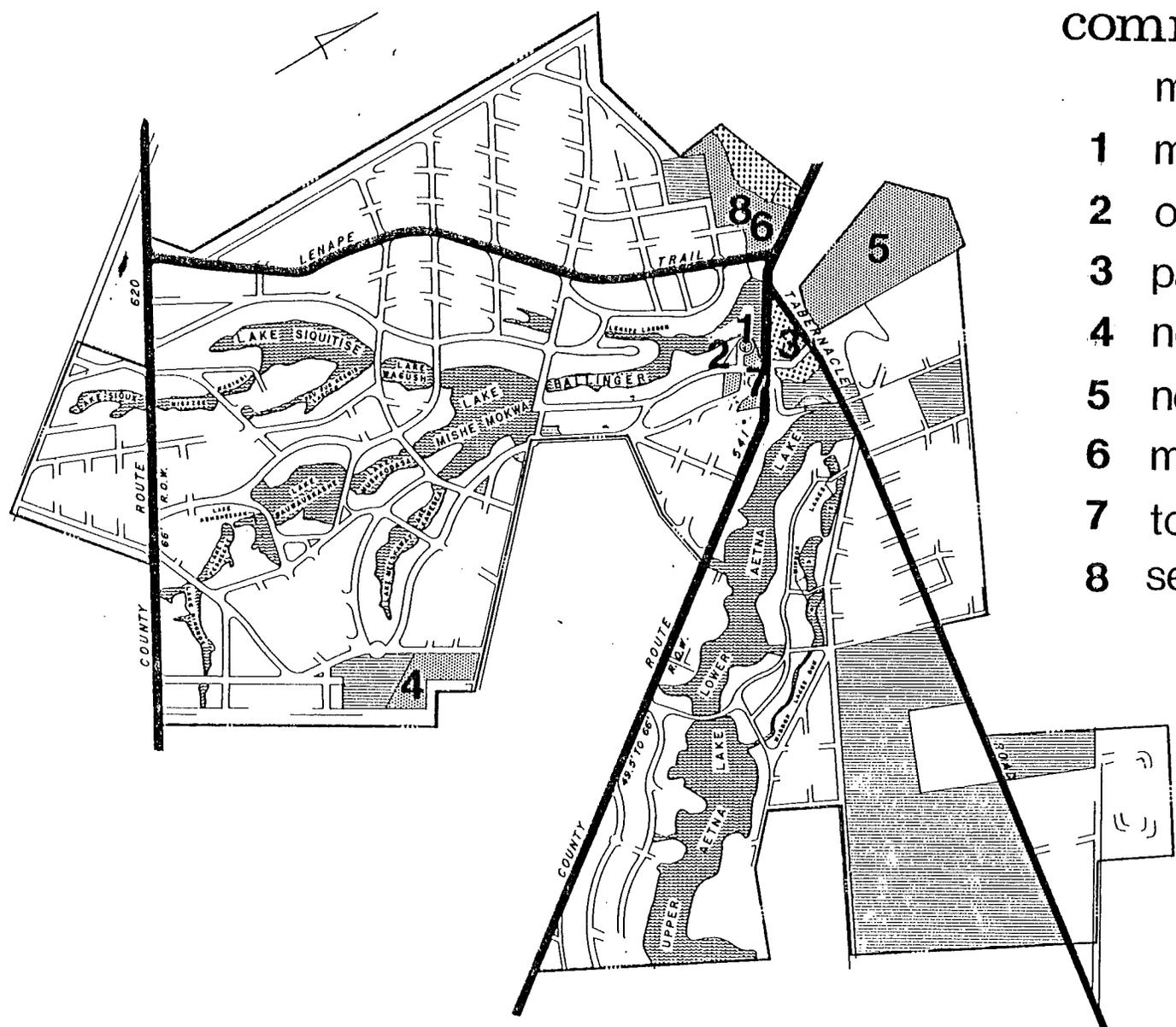
POLICE

The Police Force consists of eight full-time police officers, three full-time dispatchers, two part-time dispatchers and an office manager. The force has two marked and one unmarked patrol cars fully equipped to deal with emergencies.

Since the population growth of Medford Lakes for the past three years has been slow, the present staffing is seen as being adequate both now and in the longer term. Crime rates in Medford Lakes per capita are comparable with County averages and there is no category of crime which poses a problem.

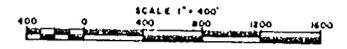
In the event of major crimes, it is mandatory to call in the County for specialist assistance. While the local officers undergo an intensive three month training program which is more than adequate for daily operations, the resources of the County consequently are available if required.

BOROUGH OF MEDFORD LAKES



community facilities

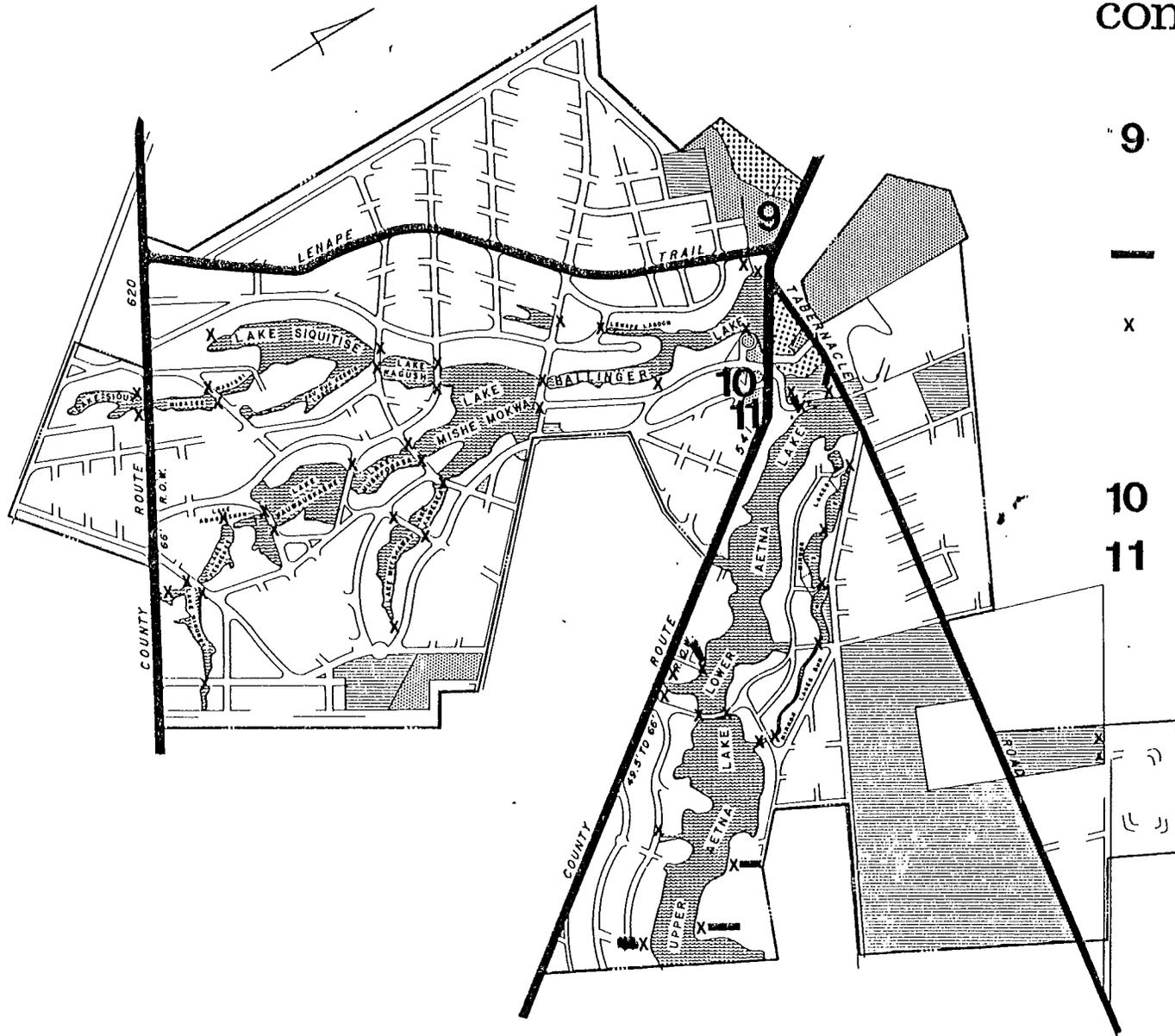
- community facilities
- municipal property
- 1 medford lakes police
- 2 oaks hall
- 3 parking lot
- 4 nokomis school
- 5 neeta school
- 6 medford lakes fire co.
- 7 todd memorial park
- 8 sewerage treatment



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	MEDFORD LAKES MASTER PLAN LAND USE PLAN MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N. J.	
C. KENNETH ANDERSON	SCALE 1" = 400'	DATE 1-8-16

BOROUGH OF MEDFORD LAKES



community facilities

municipal property

9 borough garage & fire house

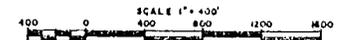
— fire lanes

x suction points

private property

10 cathedral of the woods

11 community building



ragan stein associates

31 NORTH MAIN STREET, MEDFORD, NEW JERSEY, 08055

Thomas Scavullo
T.J. SCANGARELLO
P.R. LIC. NO. 1897

C. Kenneth Anderson P.E. & L.S., N.J. LIC. NO. 11872, P.P. 31	SCALE 1" = 400' DATE 7-5-79 DRAWN E. S. A. / J.C.	SHEETS 22-30
	MEDFORD LAKES MASTER PLAN LAND USE PLAN MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N.J.	

Twenty-four hour service is given through the system of local dispatchers which ensures that response to calls is fast and effective.

FIRE

In the Pine Barrens area, forest fires are always a real threat to settlements. A severe fire which endangers Medford Lakes has occurred about once every ten years. A study of the cause of fires in Medford Township,³ showed that 43 percent were caused by smokers; most of the other fires were related to human activity. This is not simply a problem for Medford Lakes but for the whole of South Jersey in the spring and late summer months when most fires occur.

The Medford Lakes Volunteer Fire Company was incorporated in 1975. Three fire trucks, the most recent purchase being in 1975, and a van are manned by thirty volunteers. All trucks carry water with the newest having a capacity of 750 gallons. Suction points have also been located by the Fire Department. Suction points serve as sources that provide water and are easily accessible by fire equipment and fire personnel. These suction points are located

at various points within lakes and are maintained by the borough. In the event of a large fire, all volunteer fire companies in the area offer assistance: Borough maintenance employees man the fire company during day time hours. First aid is provided by volunteer emergency squads from nearby townships, as the Medford Lakes' "cabulance" is only available for transportation of patients other than emergencies. The "cabulance" is sponsored by the Lions Club.

SCHOOLS

The Borough of Medford Lakes Board of Education operates the Nokomis and Neeta Elementary Schools. Children in grades nine through twelve attend the Shawnee High School in the Lenape Regional High School District.

Nokomis School was completed in 1957 and a six room addition was added a year later. Neeta School was built in 1962 on 18 acres of property annexed from Medford Township. Since then, two additions have been completed. Combined, the two schools have 45 classrooms, including the library, gymnasium and special education facilities. The two schools have 960 pupils and employ over 80 full-time personnel including 38 full-time teachers and 12 special teachers.

CHURCHES

Only one church, the Cathedral of the Woods, is still situated in Medford Lakes. Prior to 1966, Catholic mass was offered at Saint Mary of the Lakes. That building is now the community center and the new church is located outside the Borough on Jackson Road.

CULTURAL FACILITIES

Medford Lakes has a vigorous "club Life" which is discussed in the recreation element of this Master Plan. The most notable community events are the canoe carnival held in August and the local theatrical productions staged by the Log Cabin Playhouse.

Summer camps give an opportunity for the younger "colonists" to act, learn crafts and participate in guided outdoor activities such as horseback riding, swimming and tennis.

HISTORIC SITES

Before European settlement, Medford Lakes was inhabited by the Lenni Lenape Indians who used what is now Stokes Road to travel to the ocean in summer and the shores of the Delaware in winter.

In the late colonial period, Charles Read started to build the Aetna furnace. A saw mill was built on the north end of Lower Aetna Lake on the site of the present beach. Three years later, 1769, a gristmill was built where Tabernacle Road now enters Stokes Road. A complex once containing the Aetna furnace, a blacksmith shop, ice house, company store, spring-house and a cottage was built in the same area and is now marked as an historic site.

Aetna furnace was one of the first iron manufacturing centers in the United States. Bog iron was used to make munitions for the Revolutionary War and nails for the settlers. The vast stands of timber in the area, probably oak and chestnut, were cut for charcoal to fuel the furnace.

In 1773, the furnace went out of blast: the mill was purchased at the turn of the century and resold to Thomas E. Ballinger in 1821. The property remained in Ballinger hands for just over one hundred years when it was sold for development. In 1929, it was acquired by Leon E. Todd who conceptualized Medford Lakes.

The only remnant of the eighteenth century, Charles Read's house, was demolished in 1958. It stood on the north side of Tabernacle Road where it meets Stokes Road.

recreation

Medford Lakes' most used recreational asset is, of course, the twenty-one lakes. These are used for fishing, swimming, canoeing, sail-boating and skating in winter. Although most of the lake frontage is privately owned, there are five beaches open to Colony Club members. These are supervised by life guards during the summer.

Play facilities are located on three of the beaches, numbers one, two and three. Beach one has two private jetties and bleachers for spectators of swimming events and the annual Canoe Carnival, a pavillion, six swings and parallel bars. Beach two has four swings and two see-saws. Beach three has four swings.

The Colony Club is a major force in the community organization of Medford Lakes. It owns most property including lakes, dams, parks, community houses, beaches, play grounds, camps and other features. Most of the residents of Medford Lakes are members of the Colony Club. The Colony Club runs social, athletic and recreational functions including

Vaughan Community House, the camp and craft shop and the beaches. The Club supervises all recreational activities, as well as sponsoring all bazaars, card parties, festivals, and the Canoe Carnival Water Pageant, which highlights the summer. In addition to the water sports, the Club also provides facilities for active recreation and cultural activities.

ATHLETICS

The Club sponsors the Medford Lakes Athletic Association which has 750 participants and offers six sports; baseball, girls' softball, basketball, bowling, wrestling and girls' field hockey. These sports are played at three sites. Brooks Field consists of eight tennis courts (of which three are lit for night tennis), two baseball fields, one basketball court and one childrens' playground.

COLONY CLUB ORGANIZATIONS

Clubs run under the auspices of the Colony Club include:

Womens' and Junior Women's Auxiliaries

Log Cabin Playhouse

Lions Club

Tennis Club

Duplicate Bridge

87 Club - (Teenagers)

Over 55 Club

The Colony Club maintains the facilities for all these functions including the Vaughan Community House, Vaughan Annex, the Craft Shop, and the E. Earl Jackson Park. They also own and maintain all beaches, parks, athletic fields, tennis courts, tot lots and basketball courts.

BOROUGH RECREATION FACILITIES

The Borough Board of Education maintains the two elementary schools in the area, Neeta and Nokomis. Recreation equipment at these two schools includes:

Neeta Elementary School:

- 2½ basketball courts
- 1 full basketball court
- 1 chin-up bar
- 1 picnic table
- 1 paved play area
- 1 soccer field
- 1 ball field
- 1 baseball diamond

Nokomis Elementary School:

Hopkins Field is adjacent to this school and is used for sports. It has:

- 1 basketball court
- 2 baseball fields
- 1 childrens' playground
- 1 paved play surface
- grassed open space

OTHER ORGANIZATIONS OPERATING IN MEDFORD LAKES

American Association of University Women

American Legion

Home & School Organization

Jaycees

Kiwanis Club

Lakes Registered Nurses Club

Girls Scouts Organization

Boys Scouts Organization

4-H Club

League of Women Voters

Medford Lakes Garden Club

Republican Club

Sweet Adelines, Inc.

Veterans of Foreign Wars

Volunteer Firemen

RECOMMENDATIONS

The Delaware Valley Regional Planning Commission has stated that as a goal of community "creative and constructive leisure opportunities should be within reach of all the region's residents." Nearly 40 percent of the residents of Medford Lakes are children under the age of 16, that is, 2,000 children. However, for some children, the organized recreational activities are, inaccessible and generally involve crossing a major road.

While the Borough's children have more than their fair share of recreational opportunities by any conventional standards, there are some possibilities which may be adopted.

As mentioned in the Transportation Element of this Master Plan, bicycle trails are not provided. The white guide lines on County routes serve to delimit defacto bicycle/pedestrian/moped trails. The curving local roads in Medford Lakes are narrow enough to slow cars, removing some of the danger for bicycle riders, but possibly there is a potential for a marked and sign-posted bicycle track to main beaches and ball fields. A policy of no street

lights in the area means that children on bicycles in the late afternoon when evenings are shorter, run an additional risk of accident.

conservation

Any ecological system should be regarded as an entity; changes made in one part of it have repercussions elsewhere. The infinite complexity of the simplest natural system means that the understanding of human intervention in that system can never be complete. The most we can aim to do is minimize known adverse effects. This philosophy is the basis of most ecological management.

What is not often realized, and therefore utilized, is that nature has healing powers as well. The long time which elapses before a system reaches equilibrium often obscures what is actually happening. However, the self-purification of lakes and the return of neglected agricultural land to young forest is evidence of the regenerative powers at work. Conservation management can use these powers to preserve a milieu which would otherwise be lost.

When the natural system is at dynamic equilibrium it is, by definition, at its most energy efficient. Leaf bagging, lawn-mowing, maintenance of exotic plants and insect

spraying are required to keep a system going. This process is "unnatural" and therefore the energy could be spent in other ways. Traditional gardening upsets the nutrient balance of the site and deprives natural fauna of its native habitat through introduction of exotic flora and a homogeneous environment.

As human beings, one of our failings is to notice, and possibly prefer, the obvious. The bright flower, the huge specimen tree, and the game bird attract our attention. But in the web of life these are only of limited importance compared to the hundreds of species of both plants and animals supported by the humble hedgerow or the messy wetland. If people in a settlement really want to enjoy the natural diversity and subtlety which is often inherent in that place, then they should prepare to forego a certain amount of tidiness and some of the gardening attributes which we consider mandatory in our neighbors. Working with nature has the additional benefits of being cheaper and easier.

VEGETATION

The vegetation of Medford Lakes is listed in both the University of Pennsylvania study of Medford and in "The Pine Barrens Vegetation Geography"⁵ as "urban wooded" and "urban" respectively. This classification is so wide as to be almost meaningless in the local context. Generally, it includes the spectrum of housing development from the baldest and newest on an ex-agricultural field to the older areas such as Medford Lakes in which care has been taken to keep much of the native flora.

The vegetation indigenous to the area is a forest composed of pitch pine, black, white or chestnut oak with an understory of laurel and low bush blueberries and huckleberries. These plants are all deep-rooted and can reach the lowered water table in summer in the mostly sandy soils. Alteration of the soil's acidity by liming for lawns results in the loss of many of the native plants and encourages more alkaline-loving species such as poison ivy.

Current theories indicate that in the pine region fires favor the growth of pines over oaks which are not as resistant to fire damage. It would be expected, therefore, that in

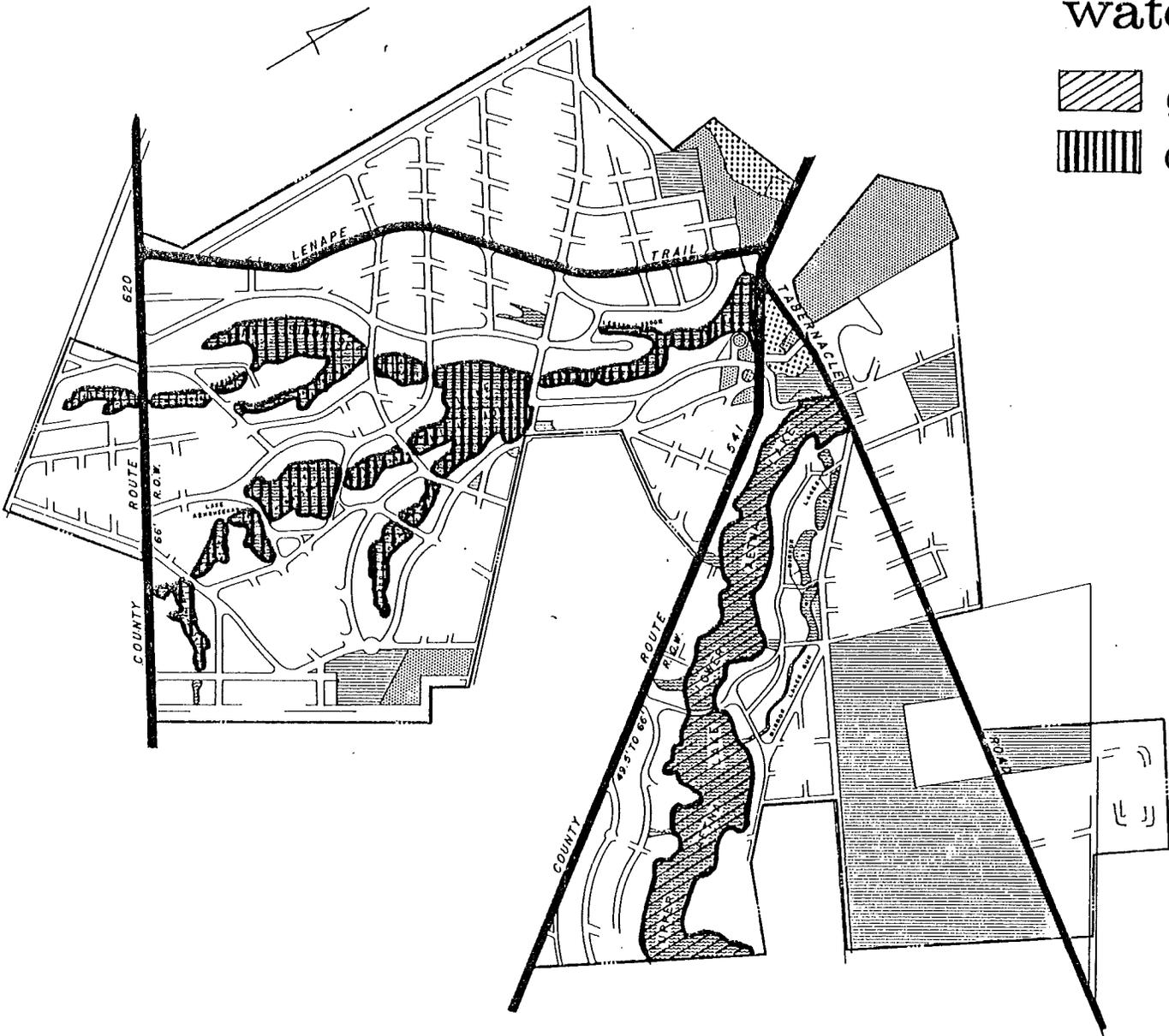
Medford Lakes, which was formerly fire-prone but which is now largely protected because of settlement, oaks would mature into the dominant tree species. It is hard to predict the effects on ecological equilibrium from the rising water table and summer watering but it seems likely that the oaks would be favored further as pines prefer a drier environment. Observation of the numbers of dead or dying pines supports this.

In Medford Lakes, care should be taken to preserve and regenerate the pines to which the "Colony" owes some of its character. It is difficult to envisage Medford Lakes devoid of its pines with their transparency and sombre colors. If there are to be pines in the fairly distant future, care should be taken to ensure continuity by management now.

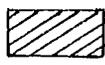
This can be done by removing oak seedlings to compensate for those which would be naturally killed by fire. Pine seedlings, which are shade intolerant and require an exposed mineral soil are consequently given some opportunity to grow.

It seems that the water table in the area is rising from clearing and from the effect of damming the streams to form the lakes. Without field research it is difficult to state definitively the effect on the pines but it seems likely that it will be adverse.

BOROUGH OF MEDFORD LAKES

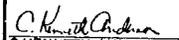


water quality

-  good
-  disturbed



ragan stein associates
 31 NORTH MAIN STREET,
 MEDFORD,
 NEW JERSEY, 08055

 C. KENNETH ANDERSON P.E. & L.E. License No. 11970 RP 311	TITLE WILLS, ANDERSON & LORD CONSULTING ENGINEERS MT HOLLY - LAMINGTON RD, MT HOLLY, N.J. 08060 (609) 887-1810
	DESCRIPTION MEDFORD LAKES MASTER PLAN LAND USE PLAN MEDFORD LAKES BOROUGH BURLINGTON COUNTY, N.J.
SCALE 1" = 400' DATE 1-5-78 DRAWN K.S.A./R.C.	SHEET NO. 22-30

THE LAKES

The lakes are Medford Lakes' most important resource: In addition to providing the intangible "spirit of the place" they contribute to the more obvious recreational, visual and wildlife attractions. Preservation of the water quality is of paramount importance.

The lakes were formed by damming creeks which form part of the headwaters of the Medford Township lake system emptying into Rancocas Creek. They are filled with brownish "cedar water," which is characteristic of natural coastal plain waters.

In the University of Pennsylvania study it was noted that the water quality of Lake Aetna was good while that of Lake Mishe Mokwa (and the other lakes in the west of Medford Lakes) was disturbed by human action to the point of being ecologically unbalanced and atypical of coastal plain waters. The decline in water quality has probably been caused by:

1. Pollutants washed down off the roads, such as oil, heavy metals and salt.
2. Possible leakage from the few septic tanks adjacent to the Borough.

3. Leaching of fertilizers applied to lawns and gardens through the sometimes excessively permeable sands surrounding the lakes.

4. Soil erosion.

5. Lack of adequate water shed.

The increase in the nutrient status (eutrophication) of the the lakes caused by numbers 2, 3, and 4 above, results in increased algae and weed growth in the lakes which is objectionable to swimmers and residents. As previously mentioned, ecological systems are entities and it may not be clear to the residents that there is a link between fertilizing the lawn and fouling the lake. On the sands which comprise the bulk of the soils in Medford Lakes, the fertilizer that is leached straight through the topsoil, becomes inaccessible to grass roots and thence makes its way to the surface waters. If lawn is favored as a ground cover it is preferable to apply fertilizer "little and often" rather than in one large dose, and to avoid fertilizer use at times of high water table and rainy periods.

The solution which has been adopted for lake eutrophication has been to drain the lakes and then add Diquat once the lakes have refilled to kill the weed. Apart from the

undesirability of adding organic chemicals to water which is used for swimming, it is probable that this will not help water quality in the long term. According to advice from the University of Pennsylvania, weed which was killed the previous year decomposes at the bottom of the lake releasing the nutrients it contains into the water. These nutrients are then available for increased growth the following spring. In other words, the cosmetic application of Diquat is "habit-forming" and over a period of time greater concentrations will be needed to kill the increasing amounts of weed. Herbivorous populations may also be destroyed. The dead weed forms the muck at the bottom of the lakes which is so objectionable to tread on. Herbicide treatments and prolonged, radical draw-downs should be avoided as they work against the development of ecologically stable lakes and in so doing, make improvement more difficult.

A better approach, but a more painful one, is to remove the weed mechanically for a few years and to persuade residents that lawns are fine in small areas. This will have the added advantage of helping to clear the lake-beds and will prove less harmful to the fish and invertebrates in the lakes.

It is stressed that the cause of present and potential further deterioration of surface water quality is the introduction of excessive organic material into the water. Any permanent solution must include reduction of this input as its primary component. Otherwise, direct discharge of street run-off to lakes, sedimentation from the lakefront gardens and the other inputs mentioned above, will continue to cause a water quality problem.

WILDLIFE

Too often "wildlife" denotes the obvious - back garden birds, animals which can be hunted and insect pests. These are the things we notice. However, a diverse environment is capable of sustaining much more than these.

Wildlife prospers in the diversity where edges meet, hedgerows, forest/field, stream banks and lake sides. Unfortunately, most of the lakesides in Medford Lakes have been built-up to make landings. This makes access and feeding for water birds next to impossible. There are no sedges or reeds at the water's edge for shelter and no natural banks for the homes of water mammals.

Ducks are not actively encouraged through provision of loafing logs or feeding stands although some mallards have made the lakes their home. (It is often argued that ducks foul lakes making them unsuitable residents. But their input is generally no more than a healthy lake can purify.) Hollow trees are removed in the interest of neatness depriving many birds and animals such as woodpeckers and squirrels of homes.

At this point, with lake frontage lots at a premium, it seems unlikely that Medford Lakes will become a thriving habitat for water-related life. This is an opportunity which has been foregone.

Insect Species

The main disease-carrying species in this area are house flies (hepatitis and poliomyelitis), mosquitoes (encephalitis), and dog ticks (Rocky Mountain spotted fever).

House flies are generally associated with inadequate waste disposal, waste including lawn clippings, household refuse and sewage. As most homes are on a sewer main, housefly-borne diseases are unlikely to be a problem.

Mosquitoes are the vectors for St. Louis Encephalitis. Because of the proximity of so much water within Medford Lakes it is a potential breeding ground: with good quality water and fairly steep banks, top-feeding minnows generally provide sufficient control. Other forms of encephalitis are present in the east of the United States but the prospect of catching them is remote.

Ticks carry Rocky Mountain spotted fever. Again it is unlikely that a resident of Medford Lakes would contract this disease. It is unlikely that ticks can be controlled over the wide area in which they occur so that avoidance of tick bites is probably the best course to take.

LANDSCAPING RECOMMENDATIONS

It is recommended that a coordinated landscaping plan be implemented for public areas such as beaches, the shopping center, car parks and lake-sides which border roads. This will enable the perpetuation of native plants in areas which may otherwise not be planted and

will enhance the enjoyment and value of these areas for the residents and foster civic pride.

A large part of the charm of this outstandingly beautiful community, derives from the native vegetation. This has reached an age where it is beginning to deteriorate and requires a replacement and maintenance program for both public and private areas.

For home gardeners it is recommended that an adult education program on gardening in the Pine Barrens and the ecology of the area be followed in conjunction with Medford Township. Understanding is a first step to appreciation; understanding will also help prevent eutrophication of lakes. Any program should be coordinated with local nurserymen and household suppliers so that materials which suit the area are available.

APPENDIX

¹The Medford Lakes Story, (1977), Colony Club of Medford Lakes

²State Development Guide Plan, Preliminary Draft, (1977), New Jersey
Department of Community Affairs, Division of State and Regional Planning

³Ecological Planning Study of Medford Township, New Jersey, (1973),
Center for Ecological Research in Planning and Design, University of Pennsylvania

⁴Planning for Play, (1968), Lady Allen of Hurtwood, MIT Press, Cambridge

⁵"The Pine Barrens Vegetation Geography", (1973), McCormick, Jack, and
Leslie Jones, New Jersey State Museum, Trenton

⁶Soil Conservation Service, Soil Survey-Burlington County, New Jersey-
October, 1977.

